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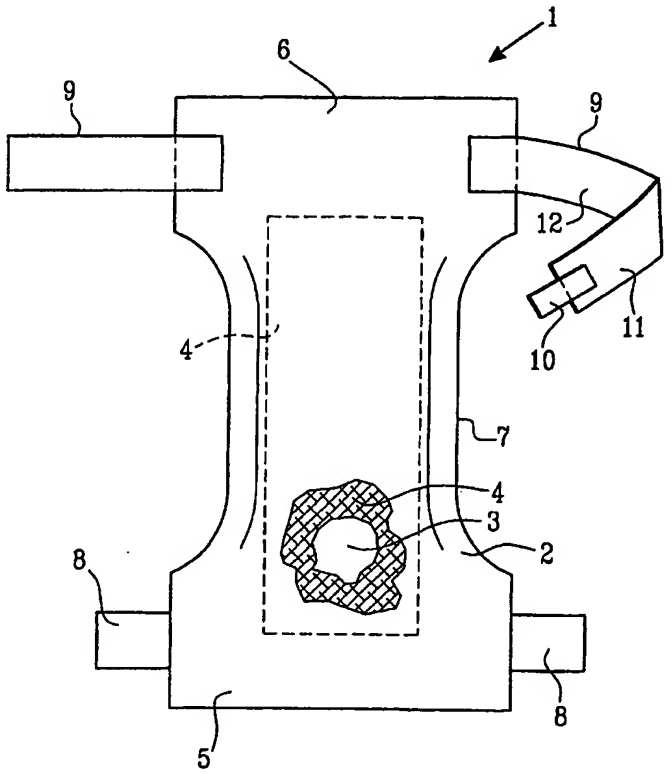
(54) Title: ABSORBENT ARTICLE PROVIDED WITH A BELT

(57) Abstract

Absorbent article such as a diaper and an incontinence guard comprising a liquid permeable topsheet (2), a liquid impermeable backsheet (3) and an absorbent body (4) enclosed therebetween, said article having a front portion (5), a rear portion (6) and a crotch portion (7) therebetween, and further is provided with a belt (9) attached to or intended to be attached to the rear portion (6) of the article and to the front portion (5) of the article, in such a way that the article will assume a pantlike shape, where the belt (9) forms a part of the waist portion of the pant. In order to avoid skin injuries and irritations the belt (9) comprises a flexible laminate of a carrier material (11) intended to form the outside of the belt and a nonwoven material (12) forming the inside of the belt which will be in direct contact with the user, at which said laminate has a Shinyakasa value according to Kawabata of 5 or more.



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Absorbent article provided with a belt

Technical field

The present invention refers to an absorbent article such as a diaper and an incontinence guard comprising a liquid permeable topsheet, a liquid impermeable backsheet and an absorbent body enclosed therebetween, said article having a front portion, a rear portion and a crotch portion therebetween, and further is provided with a belt attached to or intended to be attached to the rear portion of the article and to the front portion of the article, in such a way that the article will assume a pantlike shape, where the belt forms a part of the waist portion of the pant.

Background of the invention

Diapers and incontinence guards for incontinent adults usually have a garment portion holding an absorbent body in place against the user's body and attachment means which hold the garment portion in place also when the user is moving. A common type of attachment means are adhesive tapes or hook and loop fasteners of the touch-and-close type which directly attach the front and rear portions of the absorbent article to each other. It is further known, through e g WO 98/37847, EP-A-0 287 388, EP-A-0 409 307, EP-A-0 605 012 and FR-A-2 586 558, to attach the front and rear portions of the article by means of a belt, at which the possibilities to adjust the fit are improved.

A problem with these belts is that they easily cause skin irritations to the user, due to that the belt is in direct contact with the skin of the wearer and has to be tightened relatively strongly in order to have a satisfactory fit and security against leakage of the diaper or incontinence guard. By the tight contact and friction between the belt and the skin there will be a mechanic wear of the skin which gives rise to irritation and even skin injuries.

The object and most important features of the invention

The object of the invention is to provide a belt for absorbent articles which is kind to the skin and by that does not give rise to skin irritations and injuries. This has been

solved by the fact that the belt comprises a flexible laminate of a carrier material intended to form the outside of the belt and a soft nonwoven material intended to form the inside of the belt and which will be in contact with the skin of the user, at which said laminate has a Shinyakasa value according to Kawabata of 5 or more.

The test method in question is used in the textile industry for measuring smoothness and flexibility of a material and is disclosed in "The Standardization and Analysis of Hand Evaluation (2 nd Edition), Sueo Kawabata, July 1980, The Hand Evaluation and Standardization Committee, The Textile Machinery Society of Japan"

Other features of the invention are disclosed in the following description and claims.

Description of drawings

The invention will in the following be closer described with reference to an embodiment shown in the accompanying drawings.

The figure shows schematically a plan view of an absorbent article according to the invention.

Description of an embodiment

The drawing shows an embodiment of a diaper or incontinence guard 1 comprising a liquid permeable topsheet 2, a liquid impermeable backsheet 3 and an absorbent body 4 enclosed therebetween. The liquid permeable topsheet 2 can consist of a nonwoven material, e g a spunbond material of continuous filaments, a meltblown material or a bonded carded fibrous web. The liquid impermeable backsheet 3 may consist of a plastic film, a nonwoven material coated with a liquid impervious material or a hydrophobic nonwoven material which resists liquid penetration.

The topsheet 2 and the backsheet material 3 has a somewhat greater extension in the plane than the absorbent body 4 and extends outside the edges thereof. The layers 2 and 3 are connected to each other within the projecting portions thereof, e g by gluing or welding by heat or ultrasonic.

The absorbent body 4 can be of any conventional kind. Examples of commonly occurring absorbent materials are cellulosic fluff pulp, tissue layers, highly absorbent polymers (so called superabsorbents), absorbent foam materials, absorbent nonwovens or the like. It is common to combine cellulosic fluff pulp with superabsorbents in an absorbent body. It is also common to have absorbent bodies comprising layers of different material with different properties with respect to liquid acquisition capacity, liquid distribution capacity and storage capacity. It is well-known to the person skilled in the art and does therefore not have to be described in detail. The thin absorbent bodies which are common in for example baby diapers and incontinence guards often comprise a compressed mixed or layered structure of cellulosic fluff pulp and superabsorbent.

The diaper is intended to enclose the lower part of the wearer's trunk like a pair of absorbent pants. It comprises a front portion 5 intended during use to be worn on the front part of the user's body, a rear portion 6 intended during use to be worn on the rear part of the user's body, and a more narrow crotch portion 7 located between the front and rear portions and which is intended to be worn in the crotch part of the user between the legs. The front portion 5 is provided with a pair of adhesive tape portions 8 or other type of attachment means such as hooks and loops fasteners of the touch-and-close type, hooks etc.

A pair of belt portions 9 are with one end attached, e g glued or ultrasonically welded to the rear part 5 of the diaper. The belt portions 9 are with their opposite ends intended to be fastened together, e g by a tape portion 10 which is attached to the outside of the opposite belt portion. Instead of tape there may be another type of optional attachment means, such as hook and loop fasteners, hooks etc. The tape portions 8 or corresponding attachment means of the front portion 5 are intended to be attached against the outside of the belt portions 9 in order to fasten together the diaper to the desired pantlike shape.

The belt portions 9 consist of a laminate of a carrier material 11 forming the outside of the belt, and a soft nonwoven material 12 forming the inside of the belt, which is intended to be in direct contact with the skin of the wearer. In order to avoid skin irritations from the belt the laminate should have a Shinyakasa value according to Kawabata of 5 or more. As mentioned above this is a method used within the textile industry to measure smoothness and flexibility and it is disclosed in the literature.

A suitable nonwoven material can be a spunbond material for example of polypropylene or polyethylene fibers. Bicomponent fibers may also be used. The bonding surface of the material should not exceed 15%. Another appropriate nonwoven material is a carded thermobonded material of e g polypropylene, polyester- or bicomponent fibers. The bonding surface should be between 15 and 25%. The basis weight of the nonwoven materials contained in the laminate should be at least 20 g/m^2, preferably between 20 and 100 g/m^2 and more preferably between 30 and 60 g/m^2.

As a carrier material 11 there can be used a plastic film or another suitable material, eg a nonwoven. One example of a suitable carrier material is an embossed polypropylene film. The carrier material 11 should be adapted to function as a receiving surface for the attachment means 8 and 10, at which a plastic film is suitable in case the attachment means are tape members. In the case other types of attachment means are used instead of tapes, e g hooks of the touch-and-close type, another type of carrier material should be used which may function as a loop mateterial for the attachment means in question.

The carrier material 11 and the inside material 12 are preferably glued together. In order to achieve sufficient flexibility and softness the glue amount should not exceed 8 g/m^2. The gluing technique can be so called strip-coated or full-coated.

Tests have been made with different types of laminates used as belts in incontinence products. It has then been found that laminates having a Shinyakasa value according to Kawabata of 5 or more did not give rise to skin injuries or irritations. Examples of such belt laminates are:

A: Loosely bonded spunbond of polyethylene, basis weight 40 g/m^2, glued in strip-coat pattern to a SOPP (simultan oriented polypropylene)- plastic film, 18µm. Glue amount 3,5 g/m^2. The Shinyakasa value according to Kawabata was 10,37.

B: The same as A but another type of strip-coat pattern at the gluing. The Shinyakasa-value according to Kawabata was 9,74.

C: Loosely bonded spunbond of polypropylene, basis weight 40 g/m^2, glued in strip-coat pattern to a SOPP (simultan oriented polypropylene)- plastic film, 18µm. Glue amount 3,5 g/m^2. The Shinyakasa value according to Kawabata was 6,88.

D: The same as C but another type of strip-coat pattern at the gluing. The Shinyakasa-value according to Kawabata was 6,22.

E: Thermobonded carded nonwoven of polypropylene, basis weight 30 g/m^2, glued in full-coat pattern to a SOPP (simultan oriented polypropylene)- plastic film, 18µm. Glue amount 6 g/m^2. The Shinyakasa value according to Kawabata was 8,35.

F: The same as E but another gluing technique. The Shinyakasa value according to Kawabata was 8,69.

G: Thermobonded carded nonwoven of polypropylene, basis weight 35 g/m^2, glued in full-coat pattern to a SOPP (simultan oriented polypropylene)- plastic film, 18µm. Glue amount 6 g/m^2. The Shinyakasa value according to Kawabata was 10,22.

H: The same as E but another gluing technique. The Shinyakasa value according to Kawabata was 10,89.

The invention is of course not limited to the above described embodiments but can be modified within the scope of the claims.

Claims

1. Absorbent article such as a diaper and an incontinence guard comprising a liquid permeable topsheet (2), a liquid impermeable backsheet (3) and an absorbent body (4) enclosed therebetween, said article having a front portion (5), a rear portions (6) and a crotch portion (7) therebetween, and further is provided with a belt (9) attached to or intended to be attached to the rear portion (6) of the article and to the front portion (5) of the article, in such a way that the article will assume a pantlike shape, where the belt (9) forms a part of the waist portion of the pant, at which the belt (9) comprises a flexible laminate of a carrier material (11) intended to form the outside of the belt and a nonwoven material (12) forming the inside of the belt which will be in direct contact with the user,
characterized in
that said laminate has a Shinyakasa value according to Kawabata of 5 or more.

2. Absorbent article according to claim 1,
characterized in
that said nonwoven material (12) is a spunbond material.

3. Absorbent article according to claim 1,
characterized in
that said nonwoven material (12) is a carded material.

4. Absorbent article according to any of the preceding claims,
characterized in
that the carrier material (11) is of a material suited as a receiving surface for attachment means (8) in the form of tape members, hook and loop fasteners or the like arranged at the front part (5) of the article.

5. Absorbent article according to any of the preceding claims,
characterized in

that the carrier material (11) and the nonwoven material (12) are glued together with a glue amount of no more than 8 g/m^2.

6. Absorbent article according to any of the preceding claims,

characterized in

that the basis weight of the nonwoven material (11) is at least 20 g/m^2, preferably between 20 and 100 g/m^2 and more preferably between 30 and 60 g/m^2.

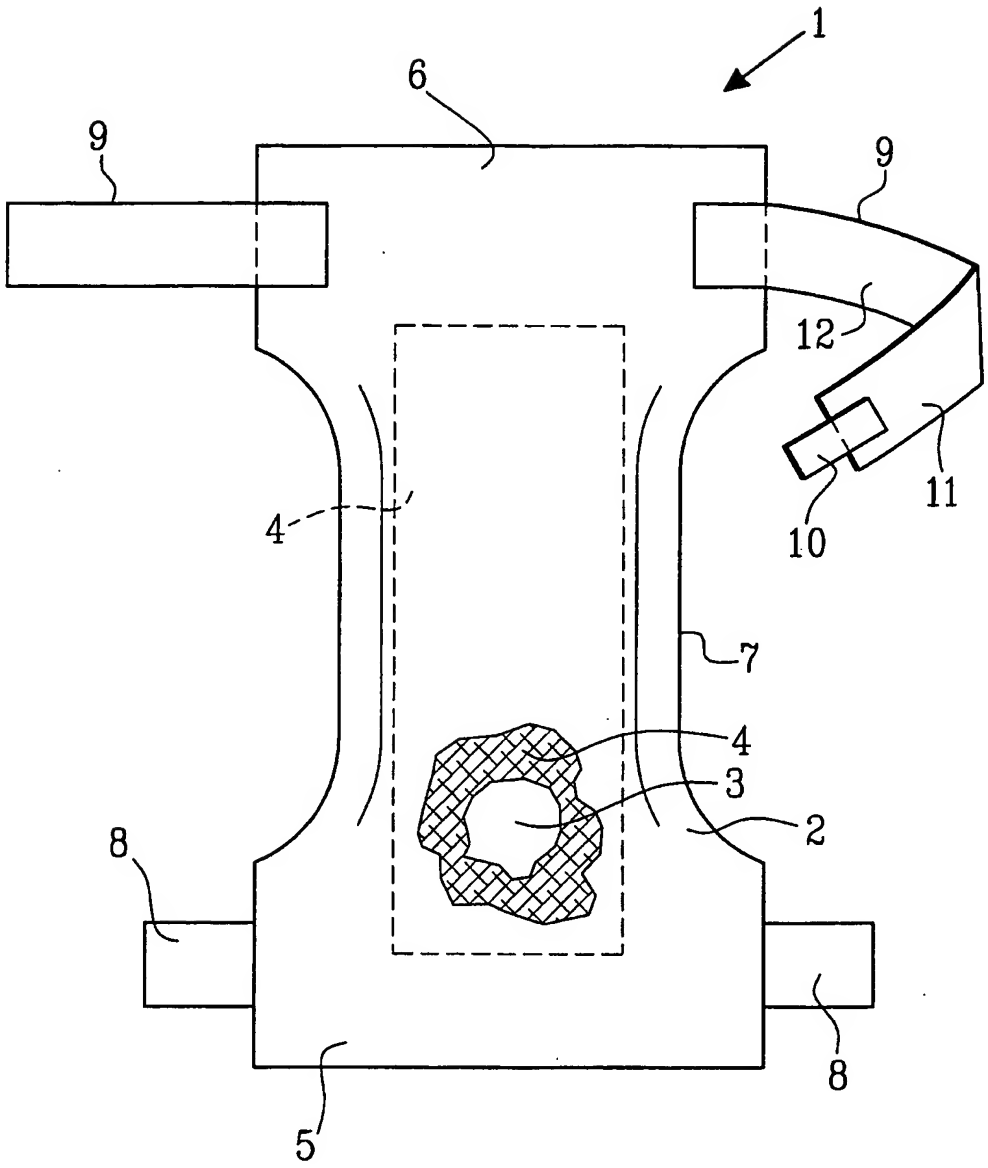

FIG.1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/01975

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 13/64
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9837847 A1 (SCA MÖLNLYCKE AB), 3 Sept 1998 (03.09.98), page 3, line 25 - page 4, line 15, figure 1	1-6
X	US 5706524 A (HERRIN ET AL), 13 January 1998 (13.01.98), column 2, line 24 - line 27; column 2, line 45 - line 49; column 3, line 19 - line 25, column 6, line 2 - line 9; claim 1	1-6
A	EP 0418493 A1 (FIBERWEB NORTH AMERICA, INC), 27 March 1991 (27.03.91)	1-6

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9734037 A1 (KIMBERLY-CLARK WORLDWIDE, INC.), 18 Sept 1997 (18.09.97) -- --------	1-6

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.
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